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EXAMINER	
SWERDLOW, DANIEL	
ART UNIT	**PAPER NUMBER**
2644	

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	08/699,844	DETTMER, DAVID R.	
	Examiner	Art Unit	
	Daniel Swerdlow	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,7-9 and 24-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,7-9,24-28 and 32* is/are rejected.

7)☒ Claim(s) *29-31,33 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the appeal brief filed on 28 November 2003, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

2. If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCaslin (US Patent 5,668,794) in view of Barron (US Patent 5,357,567).

5. Claim 1 claims a duplex portable handset speakerphone comprising a microprocessor. McCaslin discloses a speakerphone system (Fig. 1; Fig. 19) that allows full-duplex operation (column 21, lines 63-67). Claim 1 further claims the speakerphone comprises a hands-free

receive register coupled to the microprocessor. McCaslin discloses an IIR peak detector (Fig. 20, reference 420; column 22, lines 6-7) that corresponds to the hands-free receive register claimed and receives a far-end signal (Fig. 19, reference $R_{in[k]}$ column 21, lines 53-54). Claim 1 further claims the speakerphone comprises a hands-free transmit register coupled to the microprocessor. McCaslin discloses an IIR peak detector (Fig. 20, reference 428; column 22, lines 35-38) that corresponds to the hands-free transmit register claimed and receives a near-end signal (Fig. 19, reference $S_{in[k]}$ column 22, lines 35-38). Claim 1 further claims the speakerphone comprises a first analog-to-digital converter coupled to the hands-free receive register. McCaslin discloses an analog-to-digital converter (Fig. 1, reference 12; column 5, lines 36-39) that corresponds to the first analog-to-digital converter claimed and is coupled to the IIR peak detector (Fig. 20, reference 420) via the Rin(k) signal. Claim 1 further claims the speakerphone comprises a second analog-to-digital converter coupled to the hands-free transmit register. McCaslin discloses an analog-to-digital converter (Fig. 19, reference 34; column 5, lines 47-49) that corresponds to the second analog-to-digital converter claimed and is coupled to the IIR peak detector (Fig. 20, reference 428) via the Sin(k) signal. Claim 1 further claims the speakerphone comprises a first programmable digital attenuator in a speech path and coupled to the microprocessor and to a speaker. McCaslin discloses a variable attenuator (Fig. 19, reference 410; column 21, lines 41-42) that corresponds to the first programmable digital attenuator claimed and is in the speech path to the speaker (Fig. 19, reference 24). Claim 1 further claims the speakerphone comprises a second programmable digital attenuator in a speech path and coupled to the microprocessor and to a microphone. McCaslin discloses a variable attenuator (Fig. 19, reference 412; column 21, lines 43-45) that corresponds to the second programmable

digital attenuator claimed and is in the speech path to a microphone (Fig. 19, reference 26). Claim 1 further claims the microprocessor alternately receives speech signals in the respective speech paths and determines peak volume levels on both speech paths. McCaslin discloses receiving a speech signal on each speech path during each sample period (i.e., alternately) and determining far end (column 22, lines 9-10) and near end (column 22, lines 36-38) signal power using peak signal. Claim 1 further claims the microprocessor adjusts gain levels in the speech paths in response to the peak volume levels. McCaslin discloses setting the attenuators in response to a power ratio derived from peak signal levels (column 22, line 66 through column 23, line 20). Claim 1 further claims the speakerphone comprises a memory circuit having an algorithm executable by the microprocessor for operating the speakerphone. While McCaslin discloses an echo suppressor and echo canceller configuration (Fig. 19, reference 414, 408) that performs the functions of the microprocessor claimed and a method of setting attenuation that corresponds to the algorithm claimed, McCaslin fails to explicitly disclose the microprocessor, memory circuit and algorithm storage. One skilled in the art wishing to practice the echo suppressor taught by McCaslin would need to utilize appropriate hardware to implement the functions of the echo suppressor, an algorithm to operate the hardware and a memory in which to store the algorithm. Barron discloses use of the microprocessor and storage of an algorithm in a memory to implement echo suppression (Fig. 1, reference 115, 160, 135, 130; column 3, lines 13-29). It would have been obvious to one skilled in the art at the time of the invention to apply the microprocessor, memories and algorithm storage as taught by Barron to the echo suppressor taught by McCaslin for the purpose of implementing the echo suppressor in a physical platform.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCaslin in view of Barron and further in view of Chen et al. (US Patent 5,075,687).

7. Claim 2 is essentially similar to Claim 1 with the exception that Claim 2 additionally claims a pre-amplifier coupled to the microprocessor, a codec instead of analog-to-digital converters and consolidation of the microprocessor, hands-free registers, pre-amplifier, codec and attenuators on an integrated circuit controller chip. As stated above apropos of Claim 1, the combination of McCaslin and Barron makes obvious all elements of that claim. In addition, the analog-to-digital and digital-to-analog converter combination disclosed by McCaslin (Fig. 19, references 16, 34) constitutes a codec. Therefore, the combination makes obvious all elements of Claim 2 with the exception of a pre-amplifier coupled to the microprocessor and consolidation of the microprocessor, hands-free registers, pre-amplifier, codec and attenuators on an integrated circuit controller chip. Chen discloses integration of the speakerphone hardware on a single integrated circuit (column 2, lines 20-22; column 1, lines 25-44) that corresponds to the integrated circuit controller chip claimed. It would have been obvious to one skilled in the art at the time of the invention to apply integration as taught by Chen to the circuit disclosed by Barron for the purpose of reducing cost and improving stability, sensitivity and consistency. Therefore the combination of McCaslin, Barron and Chen is shown to make obvious all elements of Claim 2 with the exception of a pre-amplifier coupled to the microprocessor. Chen discloses a booster amplifier (Fig. 1, reference 28; column 3, lines 3-7) that corresponds to the pre-amplifier claimed and is coupled to a control circuit that corresponds to the microprocessor claimed. It would have been obvious to one skilled in the art at the time of the invention to apply the booster amplifier taught by Chen to the combination made obvious by McCaslin, Barron and Chen for the purpose

of creating a better quality transmitted signal by increasing the signal-to-noise ratio at the input to the analog-to-digital converter.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCaslin in view of Barron and further in view of Chen as applied to Claim 2 above, and further in view of Teitler et al. (US Patent 5,722,086). Claim 4 claims the system of Claim 2, further including a base station comprising an integrated circuit controller chip comprising a codec, a telephone line interface and a radio frequency interface. As stated above apropos of Claim 2, the combination of McCaslin, Barron and Chen makes obvious all elements of that claim. Therefore, the combination makes obvious all elements of Claim 4 with the exception of a base station comprising an integrated circuit controller chip comprising a codec, a telephone line interface and a radio frequency interface. Teitler discloses a system including a base station (Fig. 1, reference 14; column 2, lines 9-12) comprising a microcontroller unit (Fig. 1, reference 28; column 2, lines 39-46) that corresponds to the controller claimed, an ADPCM decoder and ADPCM decoder D/A combination (Fig. 1, reference 26, 34; column 2, lines 31 through 39) that corresponds to the codec claimed, an output signal to a telephone system (column 2, lines 54-57) that corresponds to the telephone line interface claimed, and an RF interface (Fig. 1, reference 24; column 2, lines 34-39) that corresponds to the radio frequency interface claimed. It would have been obvious to one skilled in the art at the time of the invention to apply the RF and telephone interface functions and the codec and controller functions as taught by Teitler to the combination of McCaslin, Barron and Chen for the purpose of increasing convenience and allowing the speakerphone to be used at a location a distance from a hard wired telephone connection without hazardous and unsightly cords by making the full duplex speakerphone

cordless. Therefore, the combination of Barron, Chen and Teitler is shown to meet all elements of Claim 4 with the exception of the codec function being included in a controller chip. Teitler discloses the combination of codec and control functions on an ADPCM CODEC chip (column 3, lines 41-44). It would have been obvious to one skilled in the art at the time of the invention to apply the ADPCM CODEC chip as taught by Teitler to the combination taught by Barron, Chen and Teitler for the purpose of making shipping and assembly cheaper by reducing the size and component count of the base unit.

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCaslin in view of Barron and further in view of Teitler.

10. All elements of Claim 7 are comprehended by Claim 1 with the exception that Claim 7 claims a ROM containing a stored operation algorithm for directing the microprocessor and a radio frequency interface at one end of each speech path. As stated above apropos of Claim 1, the combination of McCaslin and Barron makes obvious all elements of that claim. In addition, Barron discloses a ROM (Fig. 1, reference 130) for storing software to implement the speakerphone functions (column 10, lines 48-52). It would have been obvious to one skilled in the art at the time of the invention to apply algorithm storage in ROM as taught by Barron to the combination made obvious by McCaslin and Barron for the purpose of improving reliability by maintaining the algorithm in memory through a power interruption. Therefore the combination of McCaslin and Barron makes obvious all elements of Claim 7 with the exception of a radio frequency interface at one end of each speech path. Teitler discloses an RF interface (Fig. 1, reference 22; column 2, lines 12-16) that corresponds to the radio frequency interface claimed. It would have been obvious to one skilled in the art at the time of the invention to apply an RF

interface as taught by Teitler to the combination of McCaslin and Barron for the purpose of increasing convenience and allowing the speakerphone to be used at a location a distance from a hard wired telephone connection without hazardous and unsightly cords by making the speakerphone cordless.

11. Claim 8 claims the method of Claim 7 wherein the stored operation algorithm uses software timers and peak detection. As stated above apropos of Claim 7, the combination of McCaslin, Barron and Teitler meets all elements of that claim. In addition, McCaslin discloses peak detection (column 22, lines 9-10 and 36-38) and determination of peak speech amplitude over predetermined sample times (column 3, lines 59-64). Further, McCaslin discloses the use of software timers (column 14, lines 40-42).

12. Claims 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCaslin in view of Barron and further in view of Teitler as applied to Claim 8 above and further in view of Intel (80C186EA/80C188EA Microprocessor User's Manual).

13. Claim 9 claims the method of Claim 8 wherein a software timer generates a hardware interrupt to the microprocessor every speech frame so that one of the hands-free registers can be read by a software peak detector. As shown above apropos of Claim 1, McCaslin discloses repeated recalculation of attenuation based on peak detection (Fig. 20, reference 420, 428) performed by an IIR filter algorithm. However, McCaslin is silent on the details of the peak detection algorithm. As such, one skilled in the art seeking to practice the echo suppressor of McCaslin would be motivated to seek a peak detection algorithm. Barron discloses a peak detection algorithm (Fig. 5; column 5, lines 32-35) that operates on consecutive speech samples

(i.e., frames). That is, the software peak detection of Barron reads the respective values on the transmit and receive lines once every sample period. It would have been obvious to one skilled in the art at the time of the invention to apply the peak detection algorithm taught by Barron to the combination of McCaslin, Barron and Teitler for the purpose of performing the peak detection function. Therefore, the combination is shown to make obvious all elements of Claim 9 except the use of a software timer to generate a hardware interrupt to the microprocessor every speech frame to trigger the reading of the line values. In disclosing the peak detection algorithm, Barron is silent as to the way the algorithm is activated to take in each speech sample. Since it was well known that speech samples occur periodically, one skilled in the art would have been motivated to seek a way of generating a periodic signal to trigger the sample reading in the algorithm disclosed by Barron. Intel discloses the use of software timers to generate periodic hardware interrupts (pp. 9-16 through 9-20). It would have been obvious to one skilled in the art at the time of the invention to apply the use of software timers to generate periodic hardware interrupts as taught by Intel to the combination of McCaslin, Barron and Teitler for the purpose of triggering the sample reading in the algorithm disclosed by Barron.

14. Claims 24, 26 through 28 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCaslin in view of Teitler.

15. Claim 24 claims a speakerphone arrangement comprising a base unit and a portable handset communicatively coupled to the base unit via a wireless channel, including a microphone and a speaker. McCaslin discloses a speakerphone system (Fig. 1; Fig. 19) comprising a microphone (Fig. 19, reference 26) and a speaker (Fig. 19, reference 24). Claim 24

further claims the arrangement comprises a first speech path to the speaker. McCaslin discloses a speech path (Fig. 1, reference 10, 12; Fig. 19, reference 400, 410, 16, 22) to the speaker (Fig. 19, reference 24). Claim 24 further claims the arrangement comprises a second speech path to the microphone. McCaslin discloses a speech path (Fig. 1, reference 15, 48; Fig. 19, reference 402, 412, 44, 38, 36, 34, 30, 28) to the microphone (Fig. 19, reference 26). Claim 24 further claims the arrangement comprises a first programmable digital level-adjuster adapted to be controlled to provide a gain adjustment along the first speech path. McCaslin discloses a variable attenuator (Fig. 19, reference 410; column 21, lines 41-42) that corresponds to the first programmable digital level adjustor claimed and is in the speech path to the speaker (Fig. 19, reference 24) and is controlled to insert attenuation (i.e., provide gain adjustment) in that path (column 21, lines 41-52). Claim 24 further claims the arrangement comprises a second digital level-adjuster adapted to be controlled to provide a gain adjustment along the second speech path. McCaslin discloses a variable attenuator (Fig. 19, reference 412; column 21, lines 43-45) that corresponds to the second programmable digital level adjustor claimed and is in the speech path to the microphone (Fig. 19, reference 26) and is controlled to insert attenuation (i.e., provide gain adjustment) in that path (column 21, lines 41-52). Claim 24 further claims the arrangement comprises a logic decision circuit coupled to the programmable digital level adjusters and adapted to alternately receive speech signals in the respective speech paths. McCaslin discloses an echo suppressor (Fig. 19, reference 414) that corresponds to the logic decision circuit claimed, is coupled to the variable attenuators (Fig. 19, reference 410, 412) that correspond to the programmable digital level adjusters claimed and receives a speech signal on each speech path during each sample period (i.e., alternately) (column 22, lines 9-10, 36-38). Claim 24 further

claims the logic decision circuit being adapted to regularly determine the respective peak amplitudes of signals in the first and second speech paths and control the gains in the paths by controlling the programmable digital level adjusters during full duplex operation. McCaslin discloses setting the attenuators in response to a power ratio derived from peak signal levels (column 22, line 66 through column 23, line 20) during full duplex operation (column 21, lines 62-67). Therefore, McCaslin anticipates all elements of Claim 24 with the exception of the arrangement comprising a base unit and a portable handset communicatively coupled to the base unit via a wireless channel. Teitler discloses a telephone arrangement comprising a base station and a handset (Fig. 1, reference 14, 12; column 1, lines 53-54) connected by a wireless link. It would have been obvious to one skilled in the art at the time of the invention to apply wireless interconnection as taught by Teitler to the system taught by McCaslin for the purpose of increasing convenience and allowing the speakerphone to be used at a location a distance from a hard wired telephone connection without hazardous and unsightly cords by making the speakerphone cordless.

16. Claim 26 claims the arrangement of Claim 24 wherein the logic decision circuit is configured and arranged to dynamically regulate the balance of the speech paths during full duplex operation. As stated above apropos of Claim 24, the combination of McCaslin and Teitler makes obvious all elements of that claim. In addition, McCaslin discloses controlling the attenuation in both speech paths based on the signals on both paths (column 21, lines 58-62). Therefore, the combination of McCaslin and Teitler makes obvious all elements of Claim 26.

17. Regarding Claims 27 and 28, Claim 27 claims the arrangement of Claim 24 wherein the logic decision circuit is further adapted to implement automatic gain control and thereby regulate

gain proportions on at least one of the two speech paths in a full duplex state. While Claim 28 claims regulation of gain proportions along both speech paths. As stated above apropos of Claim 24, the combination of McCaslin and Teitler makes obvious all elements of that claim. In addition, McCaslin discloses controlling the attenuation in both speech paths based on the signals on both paths (column 21, lines 58-62). Since the resulting gain control is implemented automatically, the combination of McCaslin and Teitler makes obvious all elements of Claims 27 and 28.

18. Claim 35 is essentially similar to Claim 24 and is rejected for the reasons stated above apropos of Claim 24.

19. Claims 25 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCaslin in view of Teitler as applied to Claim 24 above, and further in view of Barron.

20. Claim 25 claims the arrangement of Claim 24 wherein the logic decision circuit is a microprocessor circuit. As stated above apropos of Claim 24, the combination of McCaslin and Teitler makes obvious all elements of that claim. While McCaslin discloses an echo suppressor and echo canceller that correspond to the logic decision circuit, McCaslin fails to explicitly disclose specific physical details of these elements. One skilled in the art wishing to practice the echo suppressor taught by McCaslin would need to utilize appropriate hardware to implement the functions of the echo suppressor. As stated above apropos of Claim 1, Barron discloses use of the microprocessor to implement echo suppression. It would have been obvious to one skilled in the art at the time of the invention to apply the microprocessor taught by Barron to the

combination made obvious by McCaslin and Teitler for the purpose of implementing the echo suppressor in a physical platform.

21. Claim 32 claims the arrangement of Claim 24 wherein the logic decision circuit is further adapted to implement automatic gain control using hysteresis and thereby regulate gain proportions along both speech paths in a full duplex state. As stated above apropos of Claim 24, the combination of McCaslin and Teitler makes obvious all elements of that claim. In addition, as stated above apropos of Claim 28, McCaslin discloses implementation of automatic gain control on both speech paths. Therefore, the combination of McCaslin and Teitler makes obvious all elements of Claim 32 with the exception of hysteresis. Barron discloses the use of hysteresis (column 6, lines 1-10) in implementing gain control. It would have been obvious to one skilled in the art at the time of the invention to apply hysteresis as taught by Barron to the combination made obvious by McCaslin and Teitler for the purpose of reducing choppiness.

Allowable Subject Matter

22. Claims 29 through 31, 33 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

23. The following is a statement of reasons for the indication of allowable subject matter: Claim 29 claims operation in a plurality of full duplex substates, each substate defining a different relationship between the respective speech path gains. While McCaslin discloses a coordinated variation of the gains in each speech path and transitions between operating modes based on signal levels in the speech paths (column 24, lines 6-22), the variation disclosed by

McCaslin is continuous over a range of gains for each path. McCaslin does not disclose substates, each with a particular gain combination. Since the prior art neither anticipates nor makes obvious this element, claim 29 is allowable matter.

24. Claims 30 and 31 are allowable matter due to dependence from Claim 29.

25. Claim 33 is essentially similar to Claim 31 and is allowable matter for reasons stated above apropos of that claim.

26. Claim 34 claims operation in a plurality of full duplex substates, with transition between the substates based on volume levels in the speech paths and the current substate. While McCaslin discloses transitions between operating modes based on signal levels in the speech paths (column 24, lines 6-22), McCaslin does not disclose basing the transitions on a current substate. Since the prior art neither anticipates nor makes obvious this element, claim 34 is allowable matter.

Response to Arguments

27. Applicant's arguments in the Appeal Brief filed on 28 November 2003 regarding the propriety of combining Barron with McCaslin in the rejection of Claim 1 under 35 USC 103(a) have been fully considered but they are not persuasive.

28. Applicant alleges that McCaslin is directed to avoiding the use of an adaptive echo-suppressing filter due to the expense of implementation. Examiner respectfully disagrees. While McCaslin states in the Background section (column 3, lines 35-40) that the expense of implementing an adaptive filter is a serious drawback, the embodiment in McCaslin relied upon in the rejections (Fig. 19) includes an echo canceller (reference 408) that includes an adaptive

filter (column 21, lines 30-35). As such, McCaslin cannot be said to be directed to avoiding the use of an adaptive echo-suppressing filter since McCaslin discloses an embodiment that employs one.

29. Further, examiner finds no support for applicant's statement that "the '749 reference [McCaslin] teaches the utilization of the algorithm described at column 12, line 64 through column 13, line 14, with discrete circuitry (without a processor) being used to address the high speed data processing required to suppress the echo". Rather, McCaslin is silent on the physical details of the implementation of the embodiment relied upon. One skilled in the art seeking to practice the embodiment of Claim 19 in McCaslin would seek a way to implement the algorithms disclosed in association with that embodiment including the adaptive filter. At the time of the invention, as shown by Barron, the processor and memory arrangement taught by Barron was well known to be suitable for this type of signal processing. As such it would have been obvious to one skilled in the art at the time of the invention to apply the microprocessor, memories and algorithm storage as taught by Barron to the echo suppressor taught by McCaslin for the purpose of implementing the echo suppressor in a physical platform.

30. In order to ensure that applicant has all information and references as may be useful in judging of the propriety of continuing the prosecution of his application, the appendix which was cancelled from the disclosure of the Barron reference during prosecution is provided with this Office action.

31. Applicant's remaining arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 703-305-4088. The examiner can normally be reached on Monday through Friday between 8:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forrester Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER